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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/590,488

06/18/2007

Tadahisa Kohyama

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EXAMINER

NGUYEN, LEON VIET Q

ART UNIT

PAPER NUMBER

2611

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/590,488	Applicant(s) KOHYAMA, TADAHISA	
	Examiner LEON-VIET Q. NGUYEN	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/24/06, 6/18/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 6/18/07 was filed after the mailing date of 6/18/07. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1 and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Hsu et al (US7263119).

Re claim 1, Hsu discloses a receiving apparatus, comprising:

a receiver which receives a signal (col. 3 lines 37-40);

an equalization processing unit which performs equalization processing on the signal received by said receiver (DFE 160 in fig. 1);

a selector (demux 200 in fig. 2, col. 5 lines 56-60) which selects either the signal received by said receiver (signal "M" in fig. 1, col. 3 lines 37-40) or the signal on which

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the equalization processing has been performed by said equalization processing unit (signal "Y" in fig. 1, col. 3 lines 57-59);

a first demodulation unit (demodulation path including elements 210 and 220 in fig. 2,) which demodulates the selected signal according to a first modulation scheme when a modulation scheme of the selected signal is the first modulation scheme (col. 5 lines 50-53); and

a second demodulation unit (demodulation path including element 240 in fig. 2,) which demodulates the selected signal according to a second modulation scheme when a modulation scheme of the selected signal is the second modulation scheme (col. 5 lines 50-53) whose transmission rate is higher than that of the first modulation scheme (col. 5 lines 445-50, CCK modulated symbols have a higher transmission speed than Barker modulated symbols),

wherein if the modulation scheme of the received signal is the first modulation scheme (col. 5 lines 56-60, Barker mode), said selector selects the signal received by said receiver (col. 5 lines 56-60, signal "M" corresponding to the received signal in fig. 1).

Re claim 7, the claimed limitations recited have been analyzed and rejected with respect to claim 1. It would be necessary to have a method of using the receiver as claimed in claim 1.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu et al (US7263119) in view of Ueda (US5787118).

Re claim 2, Hsu fails to teach a receiving apparatus wherein when said selector selects the signal received by said receiver, said equalization processing unit stops the equalization processing.

However Ueda teaches apparatus wherein when said selector selects a signal received by said receiver (col. 23 lines 39-42, the comparator is interpreted to select one of the outputs from circuits 53 and 54), said equalization processing unit stops the equalization processing (col. 23 lines 42-52).

Therefore taking the combined teachings of Hsu and Ueda as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the feature of Ueda into the apparatus of Hsu. The motivation to combine Ueda and Hsu would be to provide adaptive diversity equalization where computational complexity is not greatly increased (col. 8 lines 59-64 of Ueda).

Re claim 3, Hsu teaches a receiving apparatus (fig. 1) wherein the modulation scheme for a header portion of the signal is the first modulation scheme (col. 5 lines 45-48), and

wherein said equalization processing unit performs equalization processing on at least part of the header portion of the signal (col. 2 lines 38-40).

However Ueda teaches wherein the received signal is a burst (col. 2 lines 65 – col. 3 line 7), and

stops performing the equalization processing on the remaining portion of the burst signal (col. 23 lines 42-52) when said selector has selected the signal received by said receiver (col. 23 lines 39-42, the comparator is interpreted to select one of the outputs from circuits 53 and 54).

Therefore taking the combined teachings of Hsu and Ueda as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the feature of Ueda into the apparatus of Hsu. The motivation to combine Ueda and Hsu would be to provide adaptive diversity equalization where computational complexity is not greatly increased (col. 8 lines 59-64 of Ueda).

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu et al (US7263119) in view of Umemoto et al (US4985902).

Re claim 4, Hsu fails to teach a receiving apparatus further comprising a measurement unit which measures the quality of the signal received by said receiver when the modulation scheme of the signal received by said receiver is the first modulation signal,

wherein when the measured quality of the signal is worse than a predetermined threshold value, said selector selects the signal on which the equalization processing has been performed by said equalization processing unit although the modulation scheme of the received signal is the first modulation scheme.

However Umemoto teaches a measurement unit which measures the quality of a signal received by a receiver (col. 2 lines 7-11, it would be necessary to have a device to measure the quality) when the modulation scheme of the signal received by said receiver is the first modulation signal (col. 2 lines 19-20, TDMA modulation),

wherein when the measured quality of the signal is worse than a predetermined threshold value (col. 2 lines 7-11), said selector selects the signal on which the equalization processing has been performed by said equalization processing unit (col. 2 lines 7-11).

Therefore taking the combined teachings of Hsu and Umemoto as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the feature of Umemoto into the apparatus of Hsu. The motivation

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to combine Umemoto and Hsu would be to adaptively compensate for signal distortion (col. 1 lines 45-48 of Umemoto).

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu et al (US7263119) in view of Gurcan (US4985902).

Re claim 5, Hsu fails to teach a receiving apparatus wherein said equalization processing unit includes a plurality of storages which are arranged in series, and

wherein when the signal received by said receiver is selected, said selector outputs a value stored in any of the plurality of storages included in said equalization processing unit.

However Gurcan teaches wherein an equalization processing unit (fig. 5) includes a plurality of storages which are arranged in series (col. 3 lines 45-56, delay taps 22 in fig. 5), and

wherein when the signal received by said receiver is selected (the output of decision stage 20 in fig. 5), said selector outputs a value stored in any of the plurality of storages included in said equalization processing unit (it would be necessary to output the values of at least one of the delay taps 22).

Therefore taking the combined teachings of Hsu and Ueda as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the feature of Ueda into the apparatus of Hsu. The motivation to combine

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Ueda and Hsu would be to improve equalizer performance (col. 3 line 65 – col. 4 line 2 of Gurcan).

7. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu et al (US7263119) in view of Hu et al (US7187730).

Re claim 6, Hsu fails to teach a receiving apparatus wherein said second demodulation unit further includes a residual component processing unit which further performs equalization processing on the selected signal.

However Hu teaches a second demodulation unit (CCK demodulation unit of fig. 16) which further includes a residual component processing unit which further performs equalization processing on the selected signal (DFE 1610 in fig. 16).

Therefore taking the combined teachings of Hsu and Hu as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the feature of Hu into the apparatus of Hsu. The motivation to combine Hu and Hsu would be to employ reduced power consumption and achieve faster performance (col. 3 lines 3-5 of Hu).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEON-VIET Q. NGUYEN whose telephone number is (571)270-1185. The examiner can normally be reached on Monday-Friday, alternate Friday off, 7:30AM-5PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Payne can be reached on 571-272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Leon-Viet Q Nguyen/
Examiner, Art Unit 2611

/Mohammad H Ghayour/
Supervisory Patent Examiner, Art Unit 2611